Quarterly Report

Covering April 1, 2006 to June 30, 2006

Submitted July 6, 2006

Project Title

Warm Water Species Fish Passage in Eastern Montana Culverts

Prepared By

Dr. Joel Cahoon, P.E., Ph.D.
Civil Engineering Department, 220 Cobleigh Hall, Montana State University
Bozeman, MT 59715 (406) 994-5961 joelc@ce.montana.edu

Principal Investigators

Dr. Joel Cahoon, P.E., Ph.D.
Civil Engineering Department

Dr. Thomas McMahon, Ph.D.
Fish and Wildlife Science

Otto Stein, Ph.D.
Civil Engineering Department

Jarrett Barber
Math and Statistics

Research Assistants

Leo Rosenthal, Fish and Wildlife Science

Introduction

This progress report covers work completed between April 1, 2006 and June 30, 2006. Work on the project during this period has been entirely devoted to the collection of field data.

Project Objective

Culverts are a common and often the most cost effective means of providing transportation intersections with naturally occurring streams or rivers. Fish passage and fish habitat considerations are now typical components of the planning and design of waterway crossings. Many culverts in Montana span streams that support diverse fisheries. The health of these fisheries is an essential element of a recreational industry that draws hundreds of thousands of visitors to Montana annually. Additionally, there is growing recognition of the value of native Montana species, some of which are considered 'species of special concern' in the state. In recent years these concerns have become apparent for warm water species in low gradient, high sediment bearing, intermittently flowing streams that are typical of eastern Montana.

Transportation system planners, designers and managers recognize that fish passage through Montana's culverts is a concern. However, there is much contention concerning the impact that a culvert can have on a fishery. Recent basin-wide studies of various trout species that we conducted in western Montana indicate that the tools that some planners and designers promote for forecasting fish passage concerns may be overly conservative. Which species, life stages, and how many individuals must have fish passage access for how long, are questions that are often brought forward during discussions on the design and retrofitting of culverts to accommodate fish passage concerns. ***The problem is that for warm water fish species and settings in eastern Montana, the timing and number of fish that must pass a culvert to maintain viable species diversity in the watershed is unknown, and the physiologic abilities of these species relative to such common fish passage questions are often unknown.***

Progress

With only a few minor modifications, the experimental design detailed in the previous quarterly report has been working well in the field. One flashy thunderstorm interrupted field work in early June, but otherwise the only thing to report is that data collection is proceeding as planned.

Budget

Expenditures for this cycle are largely a result of stipends. The planned and actual expenditures deviate slightly due to a delay in June stipend charges to the grant. June stipends are, because of the change in fiscal year on June 30, applied in July, then retroactively moved back to June later. This will be reflected in the July-September quarterly report.